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Attorney General's Report on the Sudden Increase of Propane Prices in the Winter of 2013/2014

I. INTRODUCTION

Propane consumers throughout the United States experienced dramatic increases in pricing during the winter of 2013/2014. Missouri consumers were hit particularly hard. The Missouri Attorney General's Office (AGO) received approximately 250 propane-related comments from consumers during the 2013/2014 winter. In late January 2014, Senator Mike Parson and other leaders in the General Assembly requested that the AGO investigate the causes of the sudden price increases.

To begin its investigation, the AGO requested and received significant information from established propane providers. The AGO then examined these materials and compared historical data with 2013/2014 winter pricing. The AGO also conducted numerous inquiries with industry representatives and government entities. In addition, the AGO investigated constituent complaints of dramatic increases in propane prices.

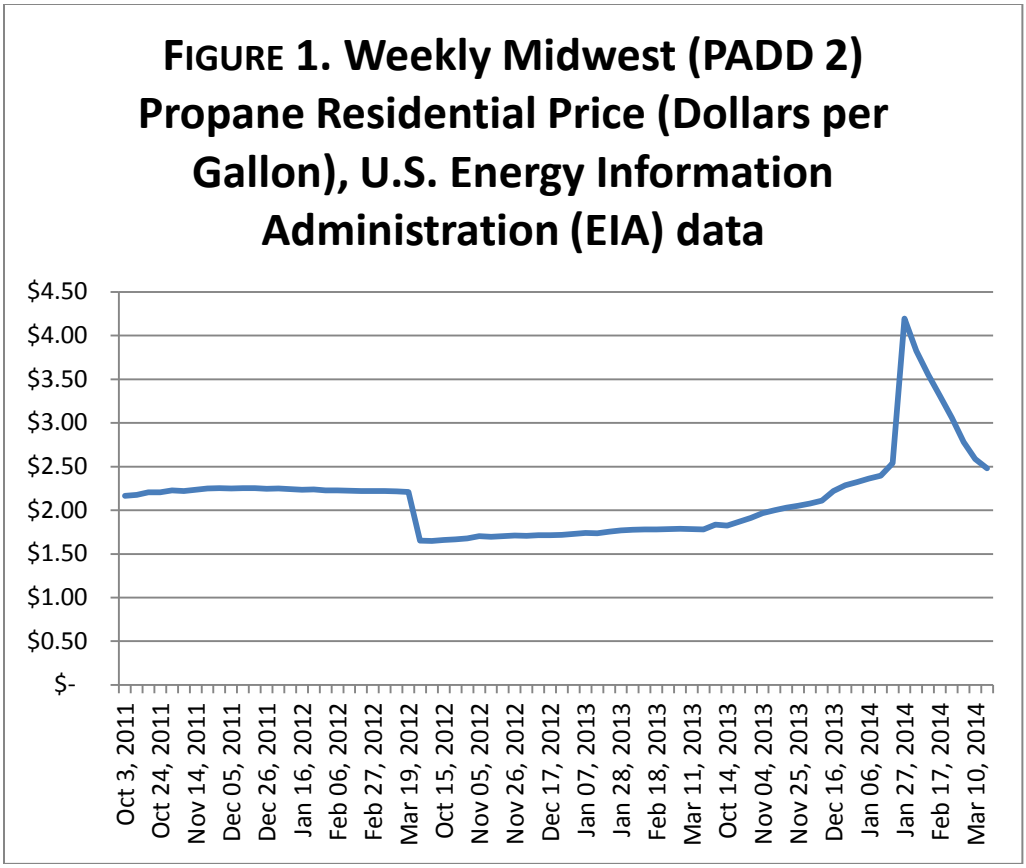
This investigation report provides background information on the propane industry, discusses multiple factors that contributed to price fluctuations during the 2013/2014 winter, and provides consumers with suggestions to consider when purchasing propane.

II. SUMMARY OF FINDINGS

The price increases experienced during the 2013/2014 winter were primarily due to propane inventory shortages in the Midwest. These shortages were caused by a number of factors. The most significant of these factors included:

- Low propane supplies in the Midwest beginning in November and persisting throughout the 2013/2014 winter;
- Unusually high demand for propane, caused by: (1) a record corn harvest that was wetter and later than normal; and (2) an abnormally cold and early winter, which required homeowners to use more propane than in recent years to warm their homes;
- Record propane exports, which reduced domestic propane inventories and reshaped the nation's propane infrastructure, making it difficult to get additional propane supplies into the Midwest from other areas; and
- Relative difficulty in moving propane to Midwest consumers on short notice.

The combination of these factors caused propane inventories in the Midwest to reach extremely low levels. Existing propane infrastructure made it difficult, slow, and costly to redirect supplies from elsewhere in the country. Because winter demand remained abnormally high from consistent cold weather, these supply-and-demand imbalances caused extreme price spikes in late January 2014 and overall high prices throughout the 2013/2014 winter. See Figure 1. The production, infrastructure, and export patterns present during the 2013/2014 winter present a possibility of continuing into future winters.



Note that the EIA does not report residential price data between April and September.

III. BACKGROUND

A. Propane Consumption in Missouri and the Midwest

Propane, sometimes referred to as liquefied petroleum gas or LPG, is a by-product of natural gas processing and crude oil refining.[1] Since propane is a by-product of these two processes, propane production generally cannot be immediately increased in the event of sudden price spikes or propane shortages.[2]

Missouri ranks 12th in the nation in propane consumption.[3] Nearly 10% of Missouri homes are heated with propane, which amounts to over

[1] Approximately 75% of propane supplies are derived from natural gas processing, and approximately 25% are derived from crude oil refining. Interview with National Propane Gas Association (NPGA).
[2] EIA, *Propane Prices: What Consumers Should Know*, Apr. 2007, https://www.npga.org/files/public/Propane%20Prices%20What%20Consumers%20Should%20Know.pdf.
[3] Missouri Department of Economic Development, Division of Energy, *Missouri Propane: At a Glance*, http://ded.mo.gov/energy/docs/Propane%20bill%20fact%20sheet%202010.pdf.

200,000 households.[4] The Midwest heats a higher percentage of homes with propane than does any other region in the country.[5] The largest propane market in Missouri is the residential sector, consuming over 50% of Missouri's propane.[6] These consumers disproportionately live in rural areas and mobile homes.[7] Typically, these consumers do not have access to natural gas distribution infrastructure and have few alternatives for heating.[8] They are particularly vulnerable to fluctuations in propane pricing. When the winter season arrives, Missouri propane consumers may face high propane bills as inventories dwindle and demand increases.

The industrial sector also uses a portion of Missouri's propane, consuming approximately 30% of the state's supply. This includes significant propane use by farmers, who use propane to dry crops, particularly during the fall season.[9] After the significant draw on Missouri inventories from the crop-drying season, propane demand typically drops off. This delay typically allows inventories to replenish before winter demand commences.

B. Propane Inventories

The nation's propane infrastructure has evolved in recent years based on growing demand as well as new sources of production. In order to understand why Missouri experienced high propane prices during the 2013/2014 winter, it is helpful to understand how Missouri obtains its propane supply. The two primary propane hubs in the U.S. are located in Conway, Kansas and Mont Belvieu, Texas. Missouri generally draws its propane inventory from Conway.[10] The Midwest typically uses twice as much propane during the winter as it does in the summer.[11] Previously, the Midwest would meet this seasonal demand via shipments from Mont Belvieu (or other Gulf Coast supplies) to the Conway hub (or other Midwest

[4] EIA, *Propane Supply*, Jan. 28, 2014.
[5] EIA, *Propane and Heating Oil Situation*, Jan. 29, 2014.
[6] Missouri Department of Economic Development, Division of Energy, *Missouri Propane: At a Glance*, http://ded.mo.gov/energy/docs/Propane%20bill%20fact%20sheet%202010.pdf.
[7] EIA, *Beyond Natural Gas and Electricity, More Than 10% of U.S. Homes Use Heating Oil or Propane*, Nov. 28, 2011, http://www.eia.gov/todayinenergy/detail.cfm?id=4070.
[8] EIA, *Beyond Natural Gas and Electricity, More Than 10% of U.S. Homes Use Heating Oil or Propane*, Nov. 28, 2011, http://www.eia.gov/todayinenergy/detail.cfm?id=4070.
[9] Missouri Department of Economic Development, Division of Energy, *Missouri Propane: At a Glance*, http://ded.mo.gov/energy/docs/Propane%20bill%20fact%20sheet%202010.pdf.
[10] Interview with Missouri Propane Gas Association (MPGA).
[11] EIA, *New Production Sources Change Domestic Propane Flows*, Oct. 2, 2013, http://www.eia.gov/oog/info/twip/twiparch/2013/131002/twipprint.html.

terminals).[12] Due to increased propane production in the Midwest, however, pipelines no longer ship propane from Mont Belvieu to Conway. Rather, propane flows south from the Midwest, from Conway to Mont Belvieu.[13] Once there, it is either consumed or exported for a higher price than could have been obtained through sales directly in the Midwest.[14]

Mont Belvieu traditionally holds significant propane inventories. Today's propane infrastructure, however, makes it difficult to transport that propane to the Midwest. Without a direct pipeline from Mont Belvieu to Conway, the industry relies on other modes of transportation, such as rail and trucks, that are slower and more expensive. Missouri does not use rail to transport significant amounts of propane. Although some rail infrastructure exists in the state, it is generally not economical to use it for propane shipments.[15] At times during the 2013/2014 winter, trucks that drove south to Mont Belvieu waited in line for 36 hours or longer (with some reports of 48-hour lines)[16] for a propane load of as little as 9,000 gallons.[17] As a result, the added expense involved in transporting propane to the Midwest contributed to higher propane prices.

In February 2014, the Federal Energy Regulatory Commission (FERC) recognized these infrastructure problems and took action in an attempt to help alleviate such problems. FERC ordered a pipeline company to temporarily provide priority access for propane shipments on its pipeline from Texas to the Midwest and Northeast. This was the first time FERC had ever taken such action.[18] The ability to take such action may prove helpful if critical shortages occur again.

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[12] EIA, *New Production Sources Change Domestic Propane Flows*, Oct. 2, 2013, http://www.eia.gov/oog/info/twip/twiparch/2013/131002/twipprint.html.
[13] EIA, *New Production Sources Change Domestic Propane Flows*, Oct. 2, 2013, http://www.eia.gov/oog/info/twip/twiparch/2013/131002/twipprint.html; interview with MPGA.
[14] Interview with MPGA.
[15] Interview with MPGA.
[16] Robert Gibbons, Reuters, *Update 2–U.S. Propane Stocks Drop, Spot Midwest Prices Rise – EIA*, http://www.reuters.com/article/2014/01/29/energy-propane-eia-idUSL2N0L31AO20140129.
[17] Russell Hubbard, Omaha World-Herald, *Propane Prices Retreat But Still Are Unusually High; Distribution Troubles Mount*, Feb. 4, 2014, http://www.omaha.com/money/propane-prices-retreat-but-still-are-unusually-high-distribution-troubles/article_2f89aec2-812c-5605-a8f2-a1727f9b03ec.html?TNNoMobile.
[18] Federal Energy Regulatory Commission, 146 FERC 61,076, *Order Directing Priority Treatment*, https://www.ferc.gov/CalendarFiles/20140207183308-OR14-20-000.pdf; Federal Energy Regulatory Commission, 146 FERC 61,085, *Order Extending Priority Treatment*, http://www.ferc.gov/CalendarFiles/20140211142718-OR14-20-000A.pdf; Thomas Content, Milwaukee-Wisconsin Journal Sentinel, *U.S. Takes Steps to Get Propane to the Midwest Quicker: Pipeline Company Boosting Shipments for Two Weeks*, Feb. 10, 2014, http://www.jsonline.com/business/us-takes-steps-to-get-propane-to-the-midwest-quicker-b99202241z1-244798611.html.

C. Stored Propane Inventories Contribute to Price Stability

In order to meet demand, particularly during the winter, the propane industry relies not only on domestic propane production, but also stored inventories of propane and a small volume of imported propane.[19] And while propane production is generally steady year-round, residential demand is seasonal.[20] As a result, stored propane supplies play an essential role in the ability to provide propane to consumers during the winter. The industry relies on three types of storage; a sufficient supply must exist in all three types of storage in order to avoid unexpected shortages or price spikes during periods of high demand.

The first type of storage, *primary storage*, includes production facilities, pipelines, and bulk terminal stocks, the largest of which are the salt-dome caverns located in Conway and Mont Belvieu.[21]

The next type of storage, *secondary storage*, are those supplies stored at approximately 25,000 propane retail dealers throughout the country.[22] This secondary storage is composed of large, pressurized above-ground tanks that typically hold 18,000 to 30,000 gallons. For economic reasons, retailers' secondary storage capacity is generally fairly small, with most retailers holding only a few days' supply.[23] This stored propane may provide assistance in getting through brief periods of price volatility. Greater amounts of storage provide more stability within the propane market. While most retailers have only a few days worth of storage, a full fourteen days of storage would help to ensure uninterrupted supplies during times of peak demand.[24]

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[19] EIA, *Propane Prices: What Consumers Should Know*, Apr. 2007, https://www.npga.org/files/public/Propane%20Prices%20What%20Consumers%20Should%20Know.pdf; Missouri Department of Economic Development, Division of Energy, *Missouri Propane: At a Glance*, http://ded.mo.gov/energy/docs/Propane%20bill%20fact%20sheet%202010.pdf.

[20] EIA, *Propane Prices: What Consumers Should Know*, Apr. 2007, https://www.npga.org/files/public/Propane%20Prices%20What%20Consumers%20Should%20Know.pdf.

[21] EIA, *Propane Prices: What Consumers Should Know*, Apr. 2007, https://www.npga.org/files/public/Propane%20Prices%20What%20Consumers%20Should%20Know.pdf.

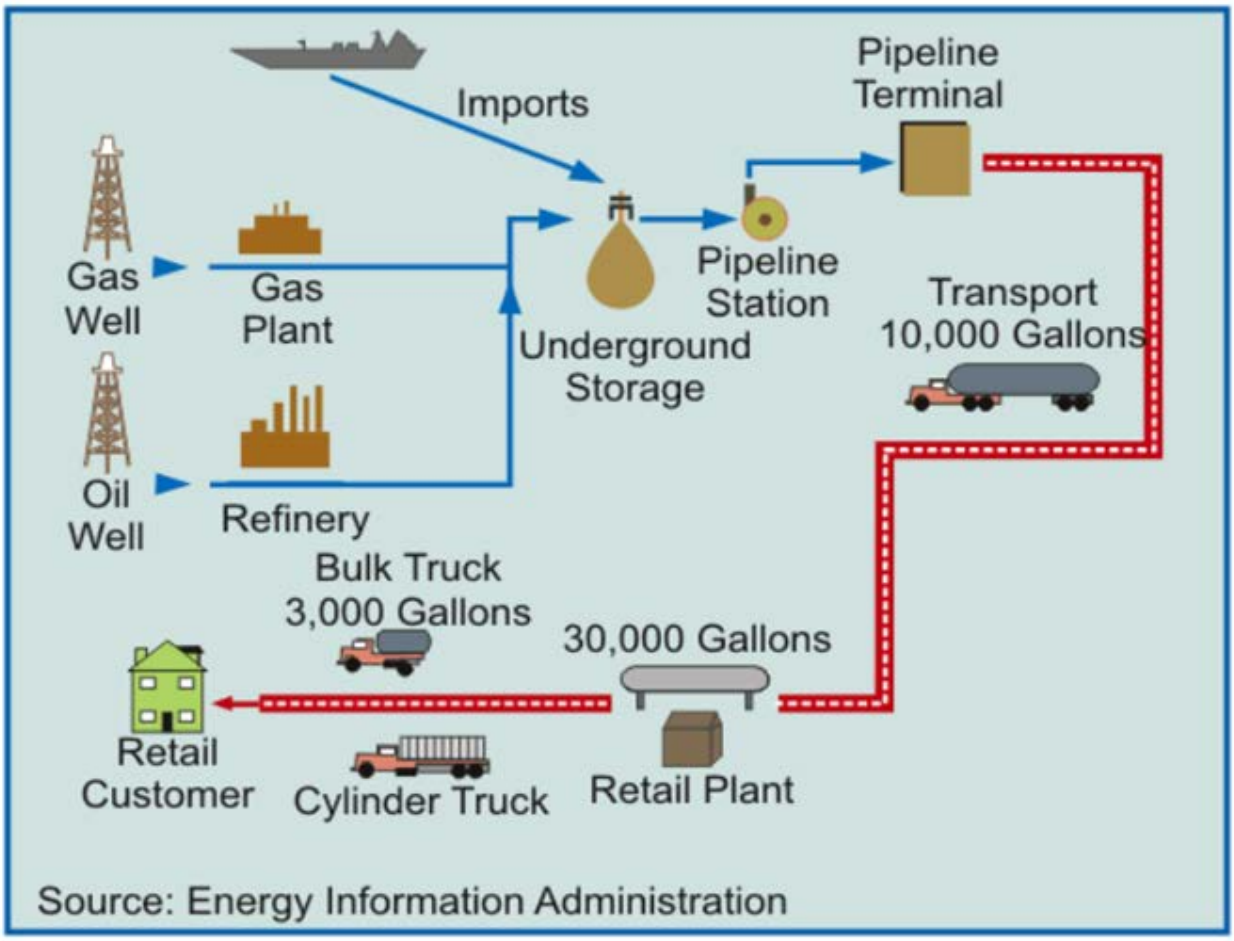
[22] EIA, *Propane Prices: What Consumers Should Know*, Apr. 2007, https://www.npga.org/files/public/Propane%20Prices%20What%20Consumers%20Should%20Know.pdf.

[23] United States General Accounting Office, *Propane: Causes of Price Volatility, Potential Consumer Options, and Opportunities to Improve Consumer Information and Federal Oversight*, June 2003.

[24] United States General Accounting Office, *Propane: Causes of Price Volatility, Potential Consumer Options, and Opportunities to Improve Consumer Information and Federal Oversight*, June 2003; Propane Education and Research Council, *Propane Council Distributes Summary of Propane Market Dynamics and Industry Infrastructure Study to Propane Industry*, Oct. 13, 2000, http://www.propanecouncil.org/PressReleases.aspx?id=2372&pressreleaseId=2673.

The final type of storage, *tertiary storage*, is composed of the smaller (often 500 or 1,000 gallon) storage tanks generally located at residences and commercial businesses.[25] This storage type is a significant source of propane inventories, especially for smaller propane retailers who may lack substantial secondary storage facilities.[26] This is also the type of storage that consumers have the most control over. If consumers purchase enough propane in the spring and fall to last all winter, then there will likely be adequate primary and secondary propane supplies to avoid propane shortages and price spikes. If, however, consumer propane orders during the winter place a strain on primary and secondary supplies, shortages and price spikes are more likely.

FIGURE 2



After the winter heating season ends, propane retailers generally assess their remaining supply, forecast their customer demand for the

[25] EIA, *Propane Prices: What Consumers Should Know*, Apr. 2007, https://www.npga.org/files/public/Propane%20Prices%20What%20Consumers%20Should%20Know.pdf.
[26] Interview with MFA Oil.

following year, and take steps to help ensure they can meet that demand.[27] When forecasting demand, retailers rely heavily on historical data and trends. Retailers are reluctant to store more propane than is necessary to meet near-term demand because of the extra costs associated with maintaining those supplies, leasing the extra storage space from third parties, and the risk that cheaper propane may be available later in the year. If industry inventories remain high, then a retailer's total costs associated with excess stored propane inventories will often be higher than the cost of acquiring new propane on the open market for the upcoming year.[28]

IV. FINDINGS

A. Propane Delivery: From Wholesalers to Retailers to Consumers

There are hundreds of propane retailers in Missouri, operating out of approximately 2,500 retail locations.[29] These retailers range in size from large, national propane companies to independent, small businesses. In order to provide their customers with propane during periods of high demand, retailers must secure sufficient product in advance. Just as propane customers have the option to pre-purchase propane from their propane retailer, propane retailers generally have the opportunity to pre-purchase or otherwise hedge supplies from wholesalers. This allows retailers to affordably provide propane to their customers, particularly those customers who pre-purchased propane for the winter.

When demand exceeds the supply that the retailer covered through pre-purchase however, the retailer must buy on the open market. During periods of high price volatility, such as the 2013/2014 winter, this can have a profound effect on the retailer and consumer. For example, if the retailer pre-sold significant amounts of propane to customers at $1.70 per gallon but finds itself having to pay $3.50 per gallon on the wholesale open market, the retailer loses $1.80 (plus operating costs) for every gallon. Some retailers, particularly larger ones, have the capacity to absorb this loss. Customers who pre-purchased propane from them will be affected little, if any. However, customers who did not pre-purchase propane at a set price will see those increased wholesale costs passed on to them. Instead of paying $1.70

[27] The storage season for contracting propane storage space is generally April to April. Interview with Williams Companies.
[28] Interview with Williams Companies.
[29] Data from Missouri Propane Gas Commission.

like those who pre-purchased or locked-in their price, these customers will generally pay the $3.50 wholesale price, plus operating expenses, plus some amount for profit. This scenario is typical of what many consumers experienced during the 2013/2014 winter, except that wholesale costs at times were even higher than $3.50, hitting $5.00 at Conway for the first time in history.[30] This resulted in some Missouri consumers facing propane bills of $5.00 or more per gallon.

Customers of smaller propane retailers are most at risk during periods of high price volatility. These retailers are not likely to have any significant amounts of stored propane,[31] and, thus, they are forced to buy propane on the open market to meet demand. Smaller retailers often do not have the capacity to absorb a large loss from the difference between the customer price and the wholesale price. As a result, some of these retailers may even go out of business, which can cause disruptions in service and higher-than-expected costs for consumers. Our investigation found that this scenario occurred with several Missouri retailers and their customers during or following the 2013/2014 winter.[32]

B. Stored Propane Inventories Were Low Going Into the 2013/2014 Winter

Data shows that propane inventories going into the 2013/2014 winter were at a 10-year low.[33] Several factors impacted propane inventories:

1. Demand from Crop Drying

In 2013, corn crops were planted later than normal because of a wet spring, and the bushel production was the highest in the nation's history.[34] Corn must be dried to a certain moisture content or else it risks rotting. Missouri's 2013 corn harvest of approximately 435 million bushels was the highest since 2009 and was over 75% larger than the prior corn harvest in

[30] Data from Amerigas Propane, LP.
[31] Interview with MPGA.
[32] Interview with MPGA.
[33] EIA, *Weekly U.S. Ending Stocks of Propane and Propylene*, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WPRSTUS1&f=W.
[34] United States Department of Agriculture, National Agriculture Statistics Service, *Corn: Production by Year, US*, Jan. 10, 2014, http://www.nass.usda.gov/Charts_and_Maps/Field_Crops/cornprod.asp; David Pitt, St. Louis Post-Dispatch, *USDA: 2013 Corn Harvest a Record 13.9B Bushels*, Nov. 8, 2013, http://www.stltoday.com/business/local/usda-corn-harvest-a-record-b-bushels/article_06dbaea3-29c4-59d2-9af2-c836f387fe8e.html.

2012.[35] Due to exceptional rainfall amounts—some areas received as much as six times more rain than usual—the record-setting national corn crop and Missouri's large harvest required much higher than normal amounts of propane to dry.[36] Nationally, November 2013 saw the greatest propane consumption of any November in the country's history, with figures not usually reached until the peak of the winter heating season in January or February.[37] This record consumption contributed to 2013 inventories in the Midwest dropping to their lowest level for November since 1996.[38]

2. Higher Than Desired Propane Inventories in Previous Years

Mild propane consumption in years prior to 2013 influenced suppliers' decisions to maintain low inventories going into the 2013/2014 winter. For example, the crop drying season during the fall of 2011 saw below-normal propane demand.[39] As a result, U.S. propane inventories were higher than desired coming out of the 2011/2012 winter season. This contributed to industry concerns regarding higher than needed inventory levels going into the 2012/2013 winter season.[40] When projecting demand for the 2013/2014 winter, the industry likely looked at the fall of 2011 and other recent crop drying seasons in deciding to maintain a smaller stored inventory.

3. Recent Warm Winters

Another factor contributing to low propane inventories were the unseasonably warm winters in recent years. According to the EIA, the number of heating degree days in December and January during the 2011/2012 and 2012/2013 winters were significantly below normal, meaning

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[35] United States Department of Agriculture, National Agriculture Service, *Missouri Final 2012 Production Report*, Jan. 11, 2013, http://www.nass.usda.gov/Statistics_by_State/Missouri/Publications/Press_Releases/20130111-Annual_Crop_Production.pdf; United States Department of Agriculture, National Agricultural Statistics Service, *Crop Production: 2013 Summary*, Jan. 2014, http://usda01.library.cornell.edu/usda/current/CropProdSu/CropProdSu-01-10-2014.pdf.

[36] Callie Mitchell, RBN Energy LLC, *Farmer Dries Corn and I Do Care; Propane Corn Drying, Shortages and the Cochin Reversal*, Nov. 10, 2013, https://rbnenergy.com/farmer-dries-corn-and-i-do-care-propane-corn-drying-shortages-cochin-reversal.

[37] EIA, *Propane Demand Hits a Record High for November*, Dec. 12, 2013, http://www.eia.gov/todayinenergy/detail.cfm?id=14151.

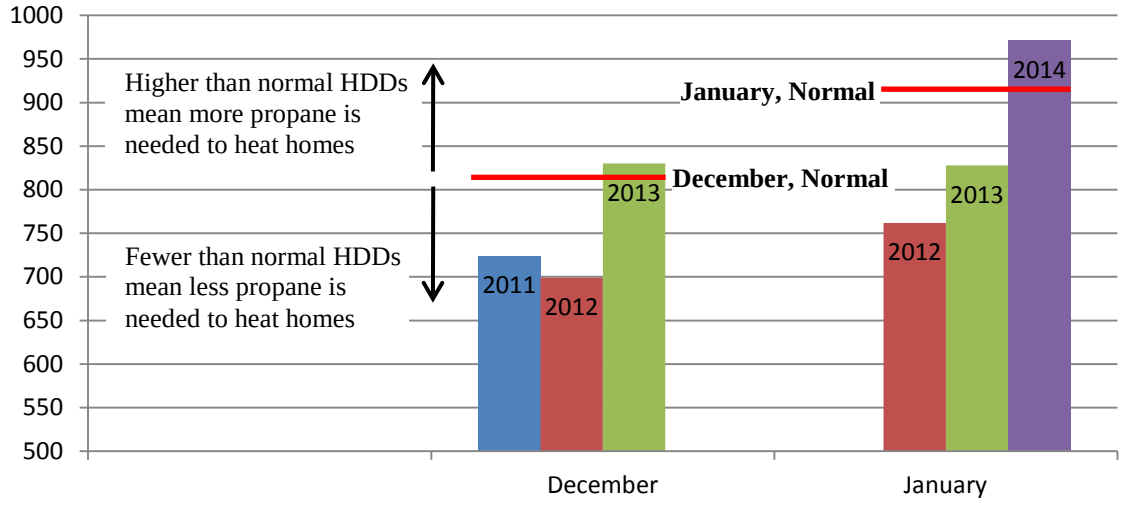
[38] EIA, *Propane Demand Hits a Record High for November*, Dec. 12, 2013, http://www.eia.gov/todayinenergy/detail.cfm?id=14151.

[39] Sheena Martin, ICIS, *Shrinking US Storage Space for NGLs Should Ease By Year End*, July 2, 2012, http://www.icis.com/resources/news/2012/07/02/9574190/shrinking-us-storage-space-for-ngls-should-ease-by-year-end/.

[40] Sheena Martin, ICIS, *Shrinking US Storage Space for NGLs Should Ease By Year End*, July 2, 2012, http://www.icis.com/resources/news/2012/07/02/9574190/shrinking-us-storage-space-for-ngls-should-ease-by-year-end/.

that considerably less propane was needed to heat homes than usual.[41] See Figure 3. When projecting demand for the 2013/2014 winter, the industry likely looked at the relatively warm winters in recent history when securing inventories. As a result, inventories were insufficient to meet the high demand that an unexpectedly cold winter brought. As discussed, 2014 inventories to date are lower than normal. Low inventories—particularly in late summer and early fall—can signal price instability if cool weather persists.

FIGURE 3. U.S. Heating Degree Days (HDD), EIA data



The 2011/2012 and 2012/2013 winters were significantly warmer than normal, with far fewer HDDs in December and January than is typical. In contrast, the 2013/2014 winter brought more HDDs than normal, particularly in January when prices reached their peak.

[41] EIA, *Annual Energy Review: Table 1.7: Heating Degree-Days by Month, 1949-2011*, Sept. 27, 2012, http://www.eia.gov/totalenergy/data/annual/showtext.cfm?t=ptb0107; EIA, *Short-Term Energy Outlook: U.S. Winter Heating Degree Days*, May 6, 2014, http://www.eia.gov/forecasts/steo/data.cfm?type=figures.

C. Unusually Cold Weather During the 2013/2014 Winter Created High Propane Demand and Further Depleted Inventories

The 2013/2014 winter brought extreme cold weather compared to recent, warm winters, causing increased propane consumption. November temperatures in the Ohio Valley weather region (of which Missouri is a part) and in the Upper Midwest were the coldest since 1997.[42] Nationally, it was the coldest November since 2000.[43] These conditions prevented propane inventories from replenishing as they typically do after the crop drying season.

Not only did the cold weather arrive early, overall temperatures were lower than normal. January 2014 brought the coldest January in the Ohio Valley since 1985.[44] See Figure 4. Both in the Ohio Valley region and nationally, the three month period between November 2013 and January 2014 was the coldest since 2001.[45] Heating degree days were 10% above the 10-year average between October 2013 and February 2014.[46] Most of the country was significantly colder during the 2013/2014 winter compared to the 2012/2013 winter, with the Midwest and the South each almost 20% colder.[47]

[42] National Oceanic and Atmospheric Administration, National Climatic Data Center, *Climatological Rankings: Ohio Valley Temperature Rankings*, http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=1&parameter=tmp&state=103&div=0&year=2013&month=11#ranks-form; National Oceanic and Atmospheric Administration, National Climatic Data Center, *Climatological Rankings: Upper Midwest Temperature Rankings*, http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=1&parameter=tmp&state=102&div=0&year=2013&month=11#ranks-form.

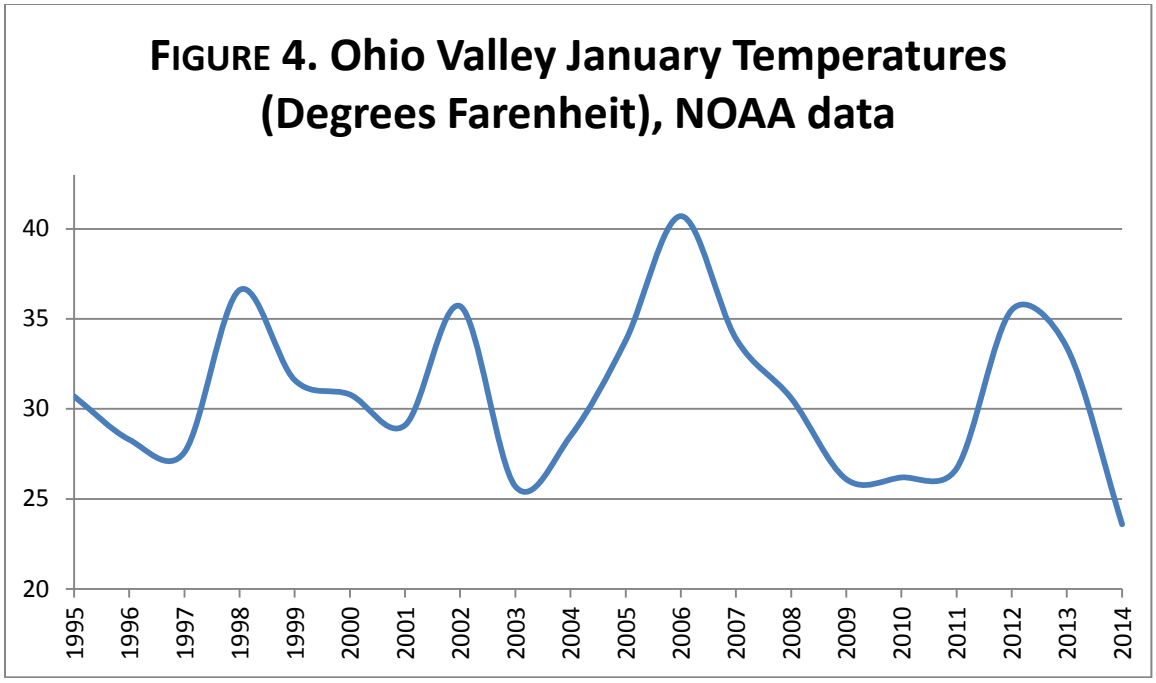
[43] National Oceanic and Atmospheric Administration, National Climatic Data Center, *Climatological Rankings: Contiguous U.S. Temperature Rankings*, http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=1&parameter=tmp&state=110&div=0&year=2013&month=11#ranks-form.

[44] National Oceanic and Atmospheric Administration, National Climatic Data Center, *Climatological Rankings: Ohio Valley Temperature Rankings*, http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?parameter=tmp&state=103&div=0&periods[]=1&month=1&year=2014#ranks-form.

[45] National Oceanic and Atmospheric Administration, National Climatic Data Center, *Climatological Rankings: Ohio Valley Temperature Rankings*, http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=3&parameter=tmp&state=103&div=0&year=2014&month=1#ranks-form; National Oceanic and Atmospheric Administration, National Climatic Data Center, *Climatological Rankings: Contiguous U.S. Temperature Rankings*, http://www.ncdc.noaa.gov/temp-and-precip/climatological-rankings/index.php?periods%5B%5D=1&periods%5B%5D=3&parameter=tmp&state=110&div=0&year=2014&month=1#ranks-form.

[46] EIA, *Heating Fuel Expenditures Rise This Winter, Especially For Propane-Heated Homes*, Mar. 12, 2014, http://www.eia.gov/todayinenergy/detail.cfm?id=15371.

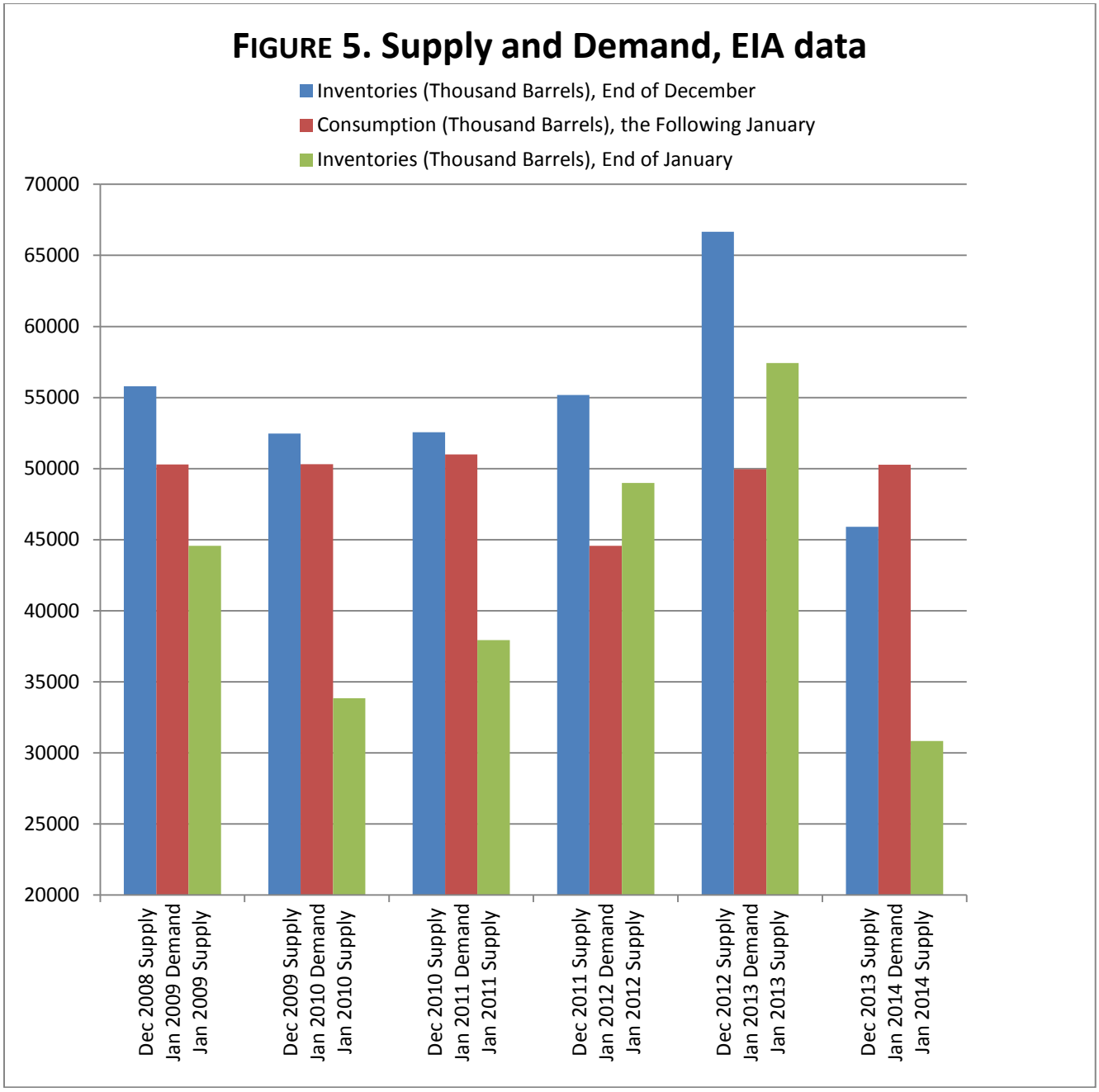
[47] EIA, *Heating Fuel Expenditures Rise This Winter, Especially For Propane-Heated Homes*, Mar. 12, 2014, http://www.eia.gov/todayinenergy/detail.cfm?id=15371.



Average January 2014 temperatures were the lowest in the 20 years displayed, and they were approximately 10 degrees cooler than the warm 2011 and 2012 Januaries.

National consumption between mid-October 2013 and the end of December 2013 was substantially higher than consumption during that time period for the last five years.[48] Consumption remained high and spiked again in early January 2014.[49] Such sustained, high propane consumption during the winter heating season further reduced propane inventories that were already low due to the late, wet harvest. For example, propane and propylene inventories in the Midwest ("PADD 2") for the 2012/2013 winter were approximately 23 million barrels at the end of December 2012 and approximately 17 million barrels at the end of January 2013.[50] Midwest propane and propylene inventories this winter were significantly lower, with approximately 14 million barrels at the end of December 2013 and approximately 9 million barrels at the end of January 2014.[51] Thus, December 2013 inventories were approximately 40% lower than the previous year, and January 2014 inventories were approximately 50% lower than the previous year. Such significantly reduced inventories are illustrative of the unusual propane demand during the 2013 fall and 2013/2014 winter.

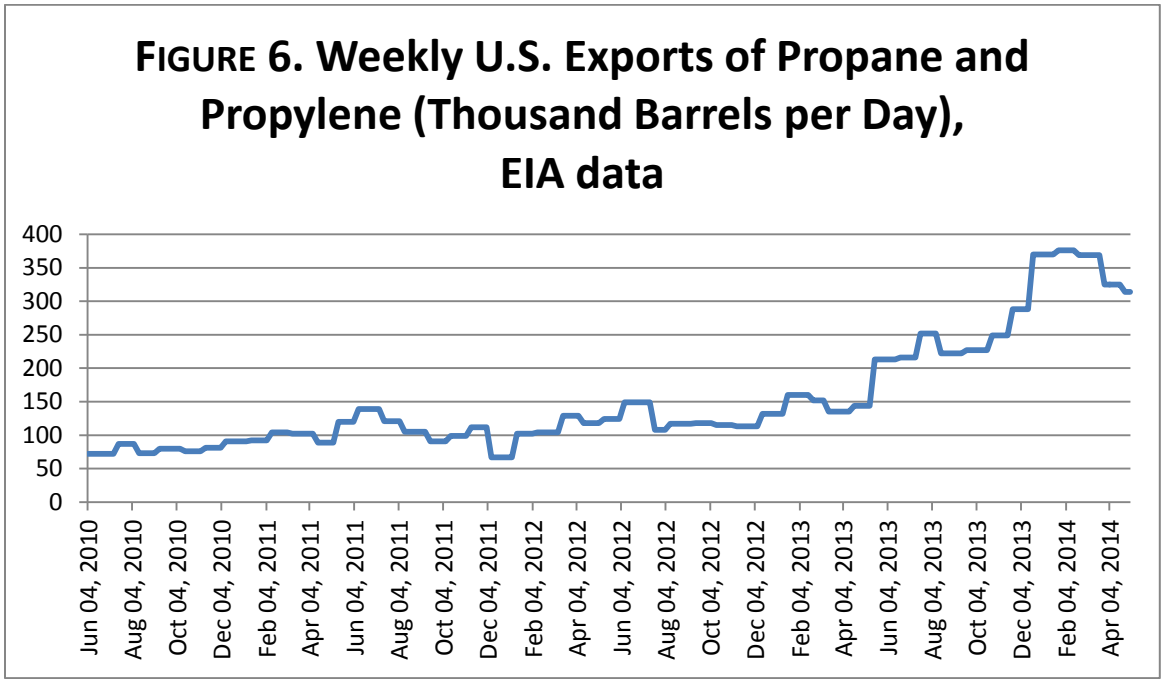
[48] EIA, *Weekly U.S. Product Supplied of Propane and Propylene*, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WPRUP_NUS_2&f=W.
[49] EIA, *Weekly U.S. Product Supplied of Propane and Propylene*, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WPRUP_NUS_2&f=W.
[50] EIA, *Weekly Midwest (PADD 2) Ending Stocks of Propane and Propylene*, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WPRSTP21&f=W.
[51] EIA, *Weekly Midwest (PADD 2) Ending Stocks of Propane and Propylene*, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=WPRSTP21&f=W.



Demand in January 2014 surpassed inventories at the end of the previous December. January demand had not surpassed prior December inventories in any of the previous five years. This contributed to end-of-January inventories in 2014 being lower than any of the prior five years, and 46% lower than January 2013 inventories.

D. Propane Exports Continued to Rise, Leaving Less Propane for Domestic Inventories

Propane exports also depleted domestic inventories in 2013. The U.S. recently became a net exporter of propane.[52] Because of high demand for propane overseas and the higher prices that exporting yields compared to selling supplies domestically—exporting can yield as much as $1.00 more per gallon[53]—exports are rising as rapidly as capacity can increase.[54] In April 2013, U.S. propane exports were approximately 140,000 barrels per day.[55] By late 2013 and early 2014, propane exports were approximately 370,000 barrels per day—nearly 2 ½ times the amount as the previous spring.[56] See Figure 6. These increased exports helped contribute to the low inventory levels during the 2013/2014 winter.



[52] EIA, *Propane Supply*, Jan. 28, 2014; Propane Education and Research Council, *2013 Propane Market Outlook*, http://www.propanecouncil.org/uploadedFiles/Council/Industry_Resources/PERC_MarketOutlook_2013.pdf.
[53] Interview with National Propane Gas Association.
[54] Propane Education and Research Council, *2013 Propane Market Outlook*, http://www.propanecouncil.org/uploadedFiles/Council/Industry_Resources/PERC_MarketOutlook_2013.pdf.
[55] EIA, *Weekly U.S. Exports of Propane and Propylene*, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPLLPZ_EEX_NUS-Z00_MBBLD&f=W.
[56] EIA, *Weekly U.S. Exports of Propane and Propylene*, http://www.eia.gov/dnav/pet/hist/LeafHandler.ashx?n=PET&s=W_EPLLPZ_EEX_NUS-Z00_MBBLD&f=W.

E. Other Factors Affecting Propane Inventories During the 2013/2014 Winter

Other factors beyond the cold weather, exports, and the corn harvest affected propane inventories during the 2013/2014 winter. First, pipeline issues created challenges. The Cochin pipeline went out of service for several weeks for maintenance in November. This pipeline flowed from Canada through some of the northern states. Areas that rely on that pipeline, such as North Dakota and Minnesota, were forced to find alternative supplies—including supplies from Conway. Another issue arose when Enterprise Products Partners reversed a pipeline to supplement the propane flowing south instead of north, placing further strain on supplies in the Midwest and Northeast.[57]

Additionally, a train derailment that occurred in Canada disrupted propane supplies going into Vermont and Maine.[58] As a result, propane had been prohibited on the rail, forcing those states to seek alternative supply sources.

Finally, the cold weather caused "freeze-offs," resulting in reduced propane production. Freeze-offs occur at natural gas wells when water used during the extraction process freezes, preventing the gas from entering the pipeline.[59] At their worst, freeze-offs can cause production disruptions that rival those caused by hurricanes.[60] Due to the 2013/2014 winter's cold weather, parts of the country experienced freeze-offs, further impacting supplies.[61]

F. Missouri Propane Retailers

The AGO investigated a number of Missouri propane retailers to assess

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[57] Elizabeth Douglass, Inside Climate News, *U.S. Propane Shortage Provides Lessons for Debate Over Oil and Gas Exports*, Mar. 10, 2014, http://insideclimatenews.org/news/20140310/us-propane-shortage-provides-lessons-debate-over-oil-and-gas-exports.

[58] Christopher Cousins, Bangor Daily News, *Propane Shortage, Frigid Temperatures Prompt LePage to Declare Civil Emergency*, May 29, 2014, http://bangordailynews.com/2013/12/13/news/state/propane-shortage-frigid-temperatures-prompt-lepage-to-declare-civil-emergency/.

[59] Jeff Brady, NPR.org, *As Temps Drop, Gas Prices Rise, Along With Demand for Fuel*, Jan. 8, 2014, http://www.npr.org/2014/01/08/260790391/as-temps-drop-gas-prices-rise-along-with-demand-for-fuel.

[60] EIA, *Winter Supply Disruptions From Well Freeze-Offs Can Rival Effects of Summer Storms*, Oct. 6, 2011, http://www.eia.gov/todayinenergy/detail.cfm?id=3390.

[61] Interview with MPGA; interview with Plains All American Pipeline, LP; interview with Oneok, Inc.; interview with Apache Corp.

how they handled the 2013/2014 winter's price increases. As part of that investigation, the AGO reviewed retailers' pricing and profit data to determine whether price gouging or other violations of Missouri's consumer protection laws occurred. The AGO also inquired into various aspects of the retailers' business models to determine how services were being provided to Missouri consumers during the 2013/2014 winter. The AGO determined that the fundamental cause of price spikes arose from market forces—supply issues in the Midwest caused Missouri retailers to face a number of obstacles in providing propane to customers this winter. These supply issues, coupled with the unusually high demand for propane, resulted in abnormally high prices for consumers.

Missouri propane retailers faced a number of challenges in providing service to consumers during the 2013/2014 winter. Consumers used more propane than expected during the 2013/2014, and retailers sold more propane than they expected. In order to procure additional propane, some retailers were forced to purchase from alternative, often distant suppliers, resulting in unexpectedly increased costs.[62] Customer orders and deliveries were higher this year than expected, resulting in increased labor costs as retailers paid significant amounts of overtime to drivers and service representatives in order to meet the increased consumer demand.[63] In part because of the high prices, many customers placed multiple, smaller orders throughout the winter in an attempt to manage costs.[64] Each stop that a retailer makes to a customer's home involves costs to the retailer, and the increased number of stops during the 2013/2014 winter resulted in additional expenses. The increased deliveries to customers compared to the 2012/2013 winter included a large number of rush delivery requests as consumers faced severely low propane levels. Because propane truck drivers typically follow a predetermined route for deliveries, these rush requests were another source of additional expenses as retailers experienced increased labor and fuel costs resulting from interrupted and less efficient routes.[65]

A thorough review of sales information from Missouri retailers indicates that Missouri retailers passed on their increased costs to consumers during the 2013/2014 winter. Chief among those costs was the high wholesale cost of propane at Conway. Between January 2010 and late 2011,

[62] Jehan Sheikh, KYTV/KY3, *Early Winter Blasts Cause Propane Shortage*, Jan. 21, 2014, http://www.ky3.com/news/local/early-winter-blasts-cause-propane-shortage/21048998_24042550; interview with MFA Oil.
[63] E.g., interview with Amerigas Propane, LP; interview with Ferrellgas Partners, LP.
[64] E.g., data from Ferrellgas Partners, LP.
[65] E.g., data from Ferrellgas Partners, LP.

wholesale prices at Conway hovered around $1.50 per gallon.[66] Between early 2012 and mid-2013, prices dropped down to approximately $1.00 per gallon. As demand increased, prices started to rise in the fall of 2013. Then, in January 2014, Conway prices reached a record high, hitting $5.00 per gallon for the first time in history.[67]

The AGO's investigation found that the majority of Missouri consumers who had contracted for propane at a set price or a maximum price did not experience price increases for the contracted propane. The more established Missouri retailers generally pre-purchased or otherwise hedged these propane supplies. As a result, those retailers were able to minimize losses incurred due to the higher Conway prices, at least to some extent. Nevertheless, because of the unusually high demand during the 2013/2014 winter, retailers generally exceeded their need estimates.[68] When purchasing additional propane inventories, those retailers were subjected to the higher wholesale costs. As a result, it was the consumers who placed orders without a pre-purchase contract who felt the brunt of the price spikes during the 2013/2014 winter.

The AGO has mediated, or is in the process of mediating, approximately 75 consumer complaints regarding specific issues with propane retailers. The AGO did receive isolated reports of pre-purchase contracts not being honored. The AGO is conducting a preliminary inquiry into two propane retailers to determine whether further action is necessary. The vast majority of comments received from consumers, though, were reports of high propane prices, typically between $4.00 and $6.00. These extreme price increases appear to have resulted from market forces. Sales data obtained by the AGO from various Missouri retailers supports that conclusion.[69] Many consumers expressed concerns that they were charged more—sometimes substantially more—than the average retail prices published by the EIA. The EIA pricing information is generally an average of all retail sales, which includes consumers who paid a significantly lower price because they had pre-purchased their propane when prices were low. Thus, if half of all residential sales were at $2.00 per gallon and the other half were at $6.00 per gallon, EIA would report an average residential price of $4.00 per gallon. As such, half of those consumers paid significantly less than the average, while half paid significantly more than the average.

[66] Data from Ferrellgas Partners, LP.
[67] Data from Amerigas Propane, LP.
[68] E.g., interview with MFA Oil.
[69] Data from Ferrellgas Partners, LP; data from Amerigas Propane, LP; data from MFA Oil.

V. CONSUMER TIPS AND RECOMMENDATIONS

Consumers have many options when purchasing propane. Some approaches might involve higher risk but can potentially result in lower overall costs. Other approaches might involve slightly higher prices but tend to protect against the risk of price spikes like those seen during the 2013/2014 winter. It is important for consumers to understand the options available to them.

- Many consumers are unaware that they can purchase propane from retailers under a fixed price plan or maximum price plan. Retailers allow consumers to "pre-purchase" a set amount of propane at a fixed price, generally during the spring or summer, for the upcoming winter. A down payment is usually required upfront, with the remainder typically due as propane is delivered. The price per gallon is set when the pre-purchase order is initially placed. The consumer is not subject to any price fluctuations during the winter heating season, at least for the number of gallons pre-purchased. If the consumer uses more propane than originally predicted, the additional amount will be at the market price. Therefore, it is important for consumers to gauge their propane needs as best they can. Some retailers also offer a maximum price plan, where the customer typically pays the market price for each delivery, subject to a capped price per gallon.

- Although prices will be predictable under a fixed price plan, there is a risk that pre-paid prices will prove to be higher than market prices. Our investigation found that fixed price customers pay less per gallon than the market price about half the time.[70] Conversely, market price customers pay less than fixed price customers about half the time.

- The AGO's investigation found that many consumers purchase propane during August or September in order to take advantage of lower prices before the winter heating season begins. Although prices are generally lower during these months, prices may be even lower during other periods. After each winter, prices are generally low in May and June.[71] Additionally, if the winter is

[70] Interview with Ferrellgas Partners, LP.
[71] Interview with MFA Oil.

mild, prices may be lower in October and November, after fall demand eases.[72]

- Consumers have the option to either purchase their tank or lease it from a retailer. If a customer leases her propane tank, Missouri law currently requires that only the leasing company may fill it, unless that company gives permission for another company to fill it.[73] As such, consumers who own their tank can shop around for the best price, while those who lease generally cannot. Still, there are advantages to leasing a tank, the first of which is not having to pay the purchase price of the tank. In addition, the propane company is typically responsible for performing maintenance on the tank if it is leased. Finally, some retailers may charge a different price depending on whether the consumer owns or leases the tank.[74]

- The AGO's investigation found that some retailers have a greater ability to deliver propane as promised during peak times, either because they hedged for the winter or because they have greater access to supply when on allocation. Consumers may want to consider the reputation of various retailers before doing business with them. If consumers are not happy with their current retailer, they should consider switching.

- Low income consumers facing difficulty paying their energy bills may qualify for assistance through the Low Income Home Energy Assistance Program (LIHEAP). Under LIHEAP, consumers may be eligible for assistance in paying their heating bills during the winter. Some consumers may be eligible for additional assistance in weatherizing their homes. Such assistance may include enhancements to insulation and other improvements. These improvements are designed to lower energy usage and ultimately the consumer's utility bills. For more information, visit http://dss.mo.gov/fsd/liheap.htm.

[72] Interview with MFA Oil.
[73] RSMo § 323.030.
[74] Interview with Amerigas Propane, LP.

VI. CONCLUSION

The propane industry places heavy reliance on predictability. When enough factors converge to shift circumstances significantly outside of what the industry had predicted, the consequences can be challenging. Ultimately, the many national and international factors discussed above converged to deplete Midwest inventories throughout the 2013/2014 winter. Unable to quickly bring sufficient low-cost propane to the region to meet the demand, the market responded with record price increases.

As part of its investigation, the Attorney General's Office conducted numerous inquiries with industry representatives and government entities. The AGO reviewed approximately 250 comments from consumers regarding propane from the 2013/2014 winter and interviewed approximately 80 consumers. As a result of the AGO's mediation efforts with propane retailers, the AGO has recovered over $3,000 for Missouri consumers and continues to mediate the remaining consumer complaints. Ultimately, the Office found no evidence of manipulation or price gouging within Missouri. The multitude of factors described above created market conditions that ultimately resulted in increased prices during the 2013/2014 winter.